TMA® TRUCK MANUFACTURERS ASSOCIATION®

1225 New York Avenue, NW – Suite 300
Washington, DC 20005-6156
Phone: 202/638-7825 • Fax: 202/737-3742

250 Bridge Street – Suite 100
Carleton Place, ON K7C 3P4
Phone: 613/253-8858 • Fax: 613/253-8859

January 7, 2003

Stephen R. Kratzke
Associate Administrator for Rulemaking
National Highway Traffic Safety Administration
400 Seventh Street, SW
Washington, DC 20590

REFERENCE: Event Data Recorders, Request for Comments [Docket No. NHTSA-02-13546, Notice 1]

Dear Mr. Kratzke:

The Truck Manufacturers Association (TMA) submits these comments in response to the subject Request for Comments. TMA represents all of the major North American manufacturers of medium and heavy-duty trucks (greater than 8,845 kilograms, or 19,500 pounds, gross vehicle weight rating). Its members include: Ford Motor Company; Freightliner LLC; General Motors Corporation; International Truck and Engine Corporation; Isuzu Motors America, Inc.; Mack Trucks, Inc.; PACCAR Inc; and Volvo Trucks North America, Inc.

TMA member companies are interested in the subject of event data recorders (EDRs) and are actively supporting a Federal Motor Carrier Safety Administration/Federal Highway Administration contract effort being performed by Veridian Engineering, Inc. titled "Development of Requirements and Functional Specifications for Event Data Recorders" [Contract No. DTFH61-01-C-00182, Task Order BZ82B007]. TMA's concern is that nearly all of the rhetoric surrounding EDRs is anecdotal, with no solid cause-effect data to either justify the benefits of EDRs or to define minimum sets of data elements. The goal of this contract effort is to establish a solid technical basis for decision making to replace the current "sounds good" ideas. Although technical issues remain to be addressed, they will likely not pose any "show stoppers." The same cannot be said for the institutional issues. Issues of privacy, data ownership, public acceptance, etc. are of critical importance and need to be addressed before any thought can be given to mandating or regulation of EDRs.

NHTSA posed 17 questions in the Request for Comments. Although research programs will need to be conceived, funded and carried out before the majority of the questions posed can be adequately addressed, the TMA's thoughts on these questions follow:

a. Safety Benefits

1 *Safety Potential.* **The NHTSA EDR Working Group concluded in its August 2001 final report (section 11.1) that EDRs have the potential to improve highway safety greatly. Do you agree with this finding? What do you see as the most significant safety potential of EDRs?** Yes, EDRs offer the potential to improve highway safety through better crash data and subsequent vehicle and infrastructure development. However, the NHTSA Working Group needs to provide quantitative data to support this statement. What remains to be proven is that the data from EDRs are in fact useful in better understanding the causes of crashes. Should EDRs be proven to provide useful, accurate data, and depending on what data are collected and who has access to the data, such data could:

- assist vehicle manufacturers in improving the designs of their vehicles;
- provide hard, objective data to a crash database which could be useful in developing accident mitigation programs; and
- provide information to roadway designers should road design be identified as a causal mechanism.

2. *Application.* **EDR technology has potential safety applications for all classes of motor vehicles. Do you believe different types of EDRs should be used for different vehicle types, such as light duty vehicles, heavy trucks, intercity motor coaches, city transit buses and school buses? If so, why? If not, why not? Do you believe different types of EDRs should be used for different applications, such as private vehicles and commercial vehicles? If so, Why? If not, why not?** TMA members believe that, although a core set of data elements might be common to all vehicles, additional unique data elements are likely to be needed depending upon the vehicle type. For example, there is a different methodology on assembly and use of non-proprietary components on heavy trucks as compared to passenger cars. There also are different data to be recorded on trucks such as the loading condition which would not be as important for passenger cars. Also, the privacy issues may segregate the types of EDRs on private versus commercial vehicles. In addition, crash pulses/trigger events will likely differ among the various vehicle types.

3. *Use of EDR data.* **NHTSA has used EDR data primarily to improve its investigations and analyses of crashes. In some cases, EDR data includes information that the agency could not otherwise obtain, e.g., which stage(s) of a multi-stage air bag deployed in a crash and when. In other cases, EDR data provide a more accurate indication of matters, e.g., level of crash severity, that have previously been estimated based on crash reconstruction programs. NHTSA includes the new or improved information from EDRs in its crash databases as appropriate. We**

request comments concerning other potential uses of these data, by NHTSA and/or other parties, which are related to improving vehicle safety, either in the short term or long term. Researchers and vehicle manufacturers use data to detect commonalities in crashes that can lead to mitigation strategies and to assess crash avoidance and crashworthiness devices in real-world crash situations.

4. *Future Safety Benefits.* **What additional safety benefits are likely from continued development, installation, collection, storage and use of EDRs?** Potential future safety benefits include: increasing the accuracy of accident reconstruction, improving injury mechanism detection, providing data to vehicle manufacturers for improved vehicle design, providing a means of measuring improvements in vehicle design, and focusing resources where they are most needed.

5. *Research databases.* **NHTSA acquires EDR data in its Special Crash Investigations (SCI), National Automotive Sampling System Crashworthiness Data System (NASS-CDS), and Crash Injury Research and Engineering Network (CIREN) and incorporates them in its motor vehicle research databases. Have you ever used the EDR data stored in these databases? How could the presentation and/or use of EDR data be improved?** We have no experience with using such data. Presumably the existence of more accurate data and more types of data would allow more in-depth analyses of crash causal factors.

6. *Prevention of crashes.* **Several researchers have documented that the use of EDRs could have the potential to prevent crashes. Some studies of European fleets found that driver and employee awareness of an on-board EDR reduced the number of crashes by 20 to 30 percent, lowered the severity of such crashes, and decreased the associated costs. (See section 2.5.1.1 of the August 2001 NHTSA EDR Working Group final report.) These studies have generally been based on small samples and concentrated on commercial application of EDRs. We request comments on other studies of this type and on this potential benefit from EDRs, particularly for the U.S. driving population.** More long-term studies of this type may prove helpful, however TMA believes the presence of an EDR alone will not have an appreciable direct effect on crash prevention. EDR's could provide a better understanding of real world crash conditions, thus providing new information for vehicle and highway infrastructure design. The study cited utilized EDRs in police cars. The drivers were aware of the fact that their driving behavior was being monitored and there was the possibility of punishment and/or firing if improper behavior was observed. Therefore, the conclusions may apply to fleet applications, but probably can not be applied to private drivers. Long-term effectiveness was not studied.

7. *Possible new databases.* **As more and more vehicles are equipped with EDRs, more EDR data will be generated. Collection of these data is likely**

to increase as state and local officials collect these data as part of their investigations. Do you have any recommendations for storing and maintaining a national or other database? Do you believe maintaining a database would be beneficial to motor vehicle safety? Please provide specific examples. TMA does not have sufficient information to comment.

8. *Standards.* **What standards exist for collecting EDR data? The Society of Automotive Engineers (SAE) has a recommended practice (SAE J211) that provides guidance for collecting crash test data. Would it be possible to use this or similar standards for collecting EDR data regarding real-world crashes? The Institute of Electrical and Electronics Engineers, Inc. (IEEE) has recently initiated a new program to develop a standard for motor vehicle EDRs. We request comments on the current activities of SAE, IEEE, and other standards organizations (U.S. and international) in developing standards for EDRs, and on what types of standards should be developed.** A set of voluntary guidelines developed by SAE may prove to be beneficial in future EDR research. TMA believes that it may be premature to develop standards for EDRs. First, there is a need to prove that EDR data are in fact useful in identifying crash causal factors. Second, the minimum data sets needs to be established for the various vehicle types based on objective rather than anecdotal data and personal opinions. Once these two goals have been accomplished, standards are necessary to allow direct comparison of data between vehicles and manufacturers, provide simplified off-loading of vehicle data, and allow multiple vendors to supply EDRs and data retrieval and analysis tools.

9. *Standardization.* **We request comments on whether there would be any safety benefits from standardizing certain aspects of EDRs, e.g., defining specific data elements such as vehicle speed, brake application, air bag deployment time, etc. Would such standardization promote further development and implementation of automatic crash notification systems or other safety devices?** We believe that standardization of EDR unit connectors and download protocols would be needed to achieve the needs addressed in the previous question. In this regard, the heavy vehicle industry has standardized on SAE J1939 protocols and would, therefore, expect it to be used for this class of vehicles.

b. *Technical Issues*

10. *Data elements.* **The NHTSA EDR Working Group identified many data elements that could be collected by an EDR. See section 4 of the August 2001 final report. More recently, the Truck & Bus EDR Working Group generated a list of 28 data elements. See section 4 of the May 2002 final report. What data elements should be considered for inclusion in an EDR? Should they vary by vehicle type and/or application? Please provide a rationale for each element, with particular emphasis on how it will lead to improvements in safety. What costs are related to each of**

your proposed data elements? TMA members believe that it may be premature to discuss data elements. That is one of the main reasons TMA is participating with Veridian in the FMCSA/FHWA contract "Development of Requirements and Functional Specifications for Event Data Recorders." We believe that research is needed to establish the basis for individual data elements, the rationale for the element and the associated costs. As we stated in our response to an earlier question, we believe that the data elements will of necessity differ by vehicle type and use. However, the agency should be cautious about any mandated requirements. Just because sensors exist, e.g., accelerometers associated with air bags, does not mean that they should be required for all vehicles. For example, air bags are not standard in many commercial vehicles, so accelerometers associated with these systems found readily in passenger cars, do not exist in most trucks.

11. *Amount of data.* **Many late-model vehicles are equipped with OEM-installed EDRs, but even among the vehicles of a given manufacturer, the type and amount of data collected vary. Do you have any recommendations for the amount of data to collect, e.g., how long before the crash occurs should the data be collected? How should the data integrity be maintained?** The amount of data recorded should be sufficient to enable reconstruction of a large percentage of all crashes. One would have to understand the crash pulses typical for the various vehicle types and select pre-trigger and post-trigger such that the entire crash event is recorded. The technical basis for determining pre-trigger and/or post-triggers, data collection frequency or duration does not currently exist. These pre- and post-triggers would need to be vehicle specific and based on solid research.

12. *Storage and collection.* **Currently, data are accessed by a physical connection to the EDR unit. Manufacturers are developing wireless connections, e.g., using a wireless probe near the crashed vehicle, or by having the on-board device upload the stored data to a central location using a telecommunications link, but such devices are not in widespread production. How should data be collected and stored in a motor vehicle? What measures should be in place to control traceability of EDR data to an actual vehicle or crash, such as EDR IDs or location and date stamping?** Storage of data should probably be triggered by defined parameters such as calculation of delta v or g levels. Storage of data should be in a protected location on the vehicle and should be on non-volatile memory to prevent loss of data if power is removed. A stand-alone EDR unit should not be required to allow flexibility in the design and placement of the EDR. EDRs should have on-board power to permit writing of data to memory for entire length of crash, regardless of vehicle power. Data should not be able to be modified or erased once recorded. EDRs should be capable of storing multiple crash events. Data should be easy to collect in the field.

13. *Training.* **What training is needed for EDR data collection officials?** EDR data should be collected by trained personnel. Minimal training in

electronics, computer operation, and vehicle systems is probably required to locate EDR and access data. Training should also include data ownership issues based on current legal findings.

14. *Survivability.* **Recording and power systems need to withstand temperature and environmental effects, power failures, and the forces of different types and modes of crashes. They also need to be tamper proof. How can all these be accomplished? What needs to be done to ensure survivability of an EDR? What level of crash severity should an EDR be able to survive? What are the costs associated with producing an EDR with this level of crash survivability?** EDRs should be able to operate in the "standard automotive environment." It is not feasible to economically develop an EDR that can survive all crashes. Survivability could involve construction of the unit, as well as placement on the vehicle. Experience has shown that information stored on a chip often can be retrieved even when the recorder has been destroyed, if the chip can be placed into a functional unit. Survivability requirements might also be dependent on the target data set, i.e., if one wanted to study crashes involving fires, then the EDR might need to be fire proof, even though few crashes involve fire. Research is needed to answer these questions.

15. *Effect of EDR technologies on your responses.* **Indicate how the nature of the EDRs currently being installed in motor vehicles affects your answers to the questions in this notice. To the extent that future EDR technologies are foreseeable, how would the implementation of those technologies affect your answers?** The nature of today's EDR technologies has not influenced the TMA responses.

c. *Privacy Issues*

16. *Privacy.* **What organizations are analyzing privacy issues in the context of roadways, vehicles, and vehicle owners? Are any additional types of analyses needed? Are privacy concerns adequately met by the current Federal and State law and practices relating to the collection and use of the information recorded by EDRs? Are there significant differences in privacy and/or liability law among states, in the circumstances under which persons or institutions may use other than vehicle owners may obtain that information, and the purposes for which those other persons or institutions may use that information? In what circumstances are police officers and crash investigators (from government agencies or the private sector) allowed to access EDR data? What damages may result from inappropriate access to EDR data? What roles do technical solutions, such as data partitioning, encryption, and secure databases/vaults play in addressing privacy concerns?** This and other institutional issues are greatly in need of research. Who owns the EDR data and who can have access to the data needs to be determined. The answer to these questions will greatly influence the implementation of EDRs.

d. *Role of NHTSA*

17. ***Role of NHTSA.*** **Over the past several years, NHTSA has been actively involved with EDRs, through the two working groups discussed above, as part of its crash investigations, and in research and development. Particularly since one working group has completed its work and the other is nearing completion, we request comments on what future role the agency should take related to the continued development and implementation of EDRs in motor vehicles.** Additional research is needed to adequately address the majority of the questions posed by NHTSA in this Request for Comments. NHTSA is a likely sponsor of such research. NHTSA is the rulemaking body of DOT with jurisdiction over new vehicle motor vehicle safety. NHTSA has the authority to mandate EDRs. However, prior to exercising this authority, the agency should: perform research on the need for multiple EDR configurations for various vehicle types; perform research to prove that EDRs will successfully increase accident reconstruction efforts through staged crash tests of varying complexity; conduct field operational tests, publish recommendations for EDR configurations; obtain feedback from OEMs, Tier 1 suppliers, and the public; and develop an implementation plan for EDRs.

TMA appreciates the opportunity to comment on the agency's questions regarding EDRs. TMA staff is available to provide additional relevant information.

Sincerely,

Robert M. Clarke
President